

ALIGNING CLIMATE STABILIZATION WITH STATE POLICY PRIORITIES: ACTIONS AND ISSUES IN WASHINGTON STATE

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ABSTRACT

Most policy initiatives to reduce greenhouse gas emissions are at the national and international level. Yet, state government can also make important contributions. State-level actions in economic development, trade promotion, public-facility energy efficiency, environmental mitigation, and electric industry structure can all have meaningful impacts on domestic and international energy use and greenhouse gas emissions.

This paper describes the efforts of Washington State's Department of Community, Trade, and Economic Development (CTED) to link energy efficiency, global climate considerations, and greenhouse gas mitigation to these activities. Specifically CTED is:

- Enhancing economic development priorities and assistance to attract, retain, grow, and develop markets for energy efficiency and renewable energy enterprises.
- Promoting energy-efficiency efforts in state facilities and schools, expanded energy performance, contracting, and making energy efficiency a key state government quality-improvement priority.
- Helping Washington's renewable and energy efficiency industry tap into export markets, particularly with Asian Pacific nations.
- Promoting continued electric system financial support for energy efficiency and renewables.

Introduction

Discussions of greenhouse gas emission reductions and the potential impacts of global climate change have focused predominately on international accords and national actions. Such focus is certainly appropriate given that greenhouse gases and climatic patterns do not respect national borders. However, state and local governments are often best situated to formulate action plans and achieve meaningful results from energy efficiency programs, sustainable land use policies, mitigation strategies, and related actions. "Climate change" may be too abstract to lend itself to direct state and local policy responses in the near-term. But flooding, drought, agricultural losses, disease outbreaks, and the litany of other probable effects are what will ultimately motivate state and local action. In Washington State, climate change is likely to have many disruptive effects, most notably to the hydrologic cycle upon which our power system, our agricultural system, and our ecosystems depend. Climate stabilization initiatives can also complement and reinforce other state and local priorities, including, economic development, trade, government efficiency, salmon recovery, and growth management.

Energy Policy Group Climate Objectives

At this time, the State of Washington has no comprehensive policy or programmatic plan for either greenhouse gas reduction or climate change impact mitigation. The Energy Policy Group CTED is working to develop a range of state level responses to the challenges of global climate change focusing on energy use and production. Our objectives are to:

1. Raise awareness of the long-term significance of climate change especially among state policymakers.
2. Promote the implementation of 'no regrets' greenhouse gas reduction strategies specifically those that promise substantial economic and environmental benefits to the state.
3. Demonstrate that energy efficiency and renewable energy sources are among the most attractive and cost effective climate change mitigation opportunities.
4. Articulate and strengthen the relationships between climate stabilization initiatives and other priority policy objectives, including economic development, trade, public sector efficiency, salmon recovery, and growth management.

Washington, like most other states, has a variety of programs that could and should logically incorporate greenhouse gas reduction actions and climate change responses. These include technical and financial assistance to local governments, business development, attraction, and retention programs, environmental regulation and restoration, trade promotion, and disaster response. Washington is also struggling with shaping the extent and direction of electricity industry restructuring, developing effective responses to Endangered Species Act (ESA) listings of wild salmonid populations, and improving the efficiency and effectiveness of state government operations. All of these areas offer opportunities to generate positive response to climate change. Such actions can help produce the visibility and results needed to create momentum for a more comprehensive state climate policy.

Media campaigns in opposition to the Kyoto accord would have us believe that efforts to meet even the relatively modest goals of that agreement will lead to massive layoffs, declining GDP, and disastrous international trade consequences. Studies by Amory Lovins (Lovins, 1997) and the U.S. Department of Energy's national laboratory system (USDOE, 1997), among others, have enumerated many ways that we can avoid such catastrophic consequences while advancing economic prosperity. Particularly in Washington, where our sources of prosperity are so powerfully linked to the quality of the environment, we have a strong predisposition to find and accentuate the linkages, rather than the conflicts, between economic progress and environmental enhancement. Some of the more promising opportunities to demonstrate that linkage include focusing on export markets for energy efficiency and renewable energy companies, improving the energy performance of public buildings, using the tools of state economic development and growth management to reduce transportation dependence, and 'growing' our climate friendly industries.

This paper describes our initial efforts to respond to climate change, primarily in conjunction with issues that rank high on the state's policy agenda. As climate change emerges as a more compelling issue in its own right, we hope these initial efforts will have laid the groundwork for more ambitious emission reduction strategies.

Greenhouse Gas Production in Washington State

By U.S. standards, Washington State is not a prolific greenhouse gas producer. On a per capita basis our greenhouse gas emissions rank 38th among the 50 states (Kerstetter, 1993). Washington residents produce about 3.7 metric tons of carbon-equivalent per year compared to a national average of about 5.3 metric tons. Overall, Washington produces approximately 23 million metric tons of carbon emissions annually. More than 80% of that total is from energy-related activities. We are, except for one large coal mine, not a significant fossil fuel producer. Washington State also has the largest concentration of hydroelectric generating facilities in the U.S.

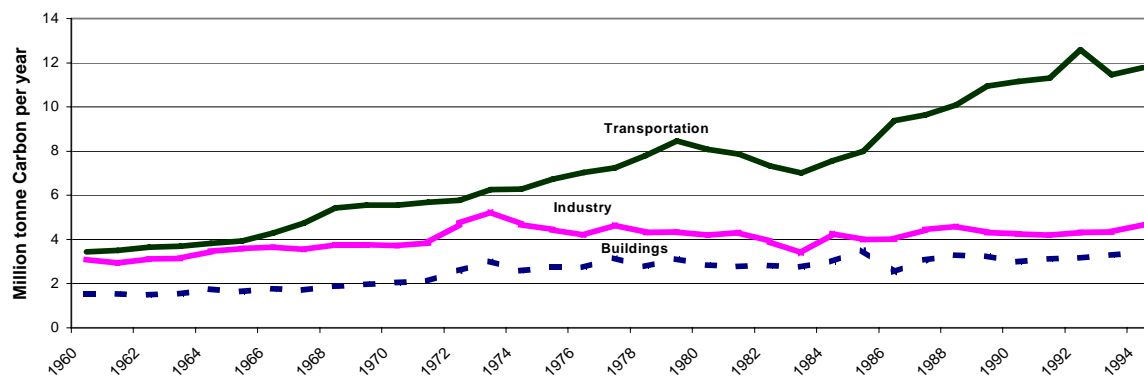


Figure 1. WA Carbon Emissions by Sector 1960-95

However, by the more important standard of what it takes to stabilize the climate, Washington has a long way to go. And the current trends are hardly encouraging. Figure 1 shows the dramatic growth in carbon-equivalent emissions over the last three and a half decades. What is immediately apparent is that transportation is by far the largest and fastest-growing single contributor. Carbon emissions have increased by more than 240% over this period. The building sector has also experienced substantial growth, (123% since 1960) and, while some gains have been made in per capita emissions for many end-uses, the climate is indifferent to “capita”; absolute reductions will ultimately be required.

Although we do not have a large concentration of many of the traditional heavy industries, our large number of aluminum companies with the extremely potent carbon tetrafluoride (CF₄) emissions is noteworthy.¹ On the other hand, the aluminum industry has been one of the few real success stories with reductions in greenhouse gas emissions. Overall trends in other greenhouse gas emissions are not encouraging.

Washington’s once-ambitious electric utility energy efficiency programs have declined dramatically in the face of actual or perceived electric power competition. Sites for new hydroelectric facilities no longer exist – indeed, some hydroelectric production may be curtailed to protect endangered salmon and steelhead. As in much of the rest of the U.S., renewable energy sources are struggling to compete in an electric power market dominated by cheap natural gas, substantial surpluses, and the advent of new high-efficiency combined cycle combustion turbines. Perhaps most alarming is that vehicle miles traveled continue to climb at a breathtaking rate while the fuel efficiency of the new fleet declines.² While the prospects for leadership in post-carbon energy technologies in Washington are solid, the current trajectories are disconcerting.

¹ Kerstetter, 1994 estimate that in 1990 CF₄ emissions accounted for 11% of total state greenhouse gas emissions (page 14).

² Washington’s per capita VMT has increased from 5,970 miles in 1970 to 9,140 in 1993 (WSEO, 1996, page 41).

Possible Consequences of Global Climate Change for the Pacific Northwest

Why should Washington State be concerned about the possible results of climate change? Some have remarked, only partially facetiously, that recent warmer winters may be a desirable outcome of climate change. While the prospect of warmer winters may appeal to some, we have fashioned much of our economic and social system around existing climatic conditions. It will be very difficult and extremely expensive to adapt existing systems and institutions, let alone salmon or other endangered species, to relatively rapid climatic changes. Gripe about the weather as we may, much of what makes the Northwest desirable and productive is its existing climate regime.

What are some of the possible results of global climate change for Washington State and the Pacific Northwest? Some of the most sophisticated scientific work on local impacts coming from the University of Washington's Joint Institute for the Study of Atmosphere and Oceans (JISAO). The results of a recent regional conference (Snover, Miles, Henry 1997) provide a glimpse of that work. The conference highlighted potential climate impacts for hydrology and water resources, forest and rangelands, aquatic ecosystems, coastal activities, agriculture and grazing lands, human health effects, urban centers, and energy production and use. Results are based on a regional climate change scenario that predicts warmer, wetter winters and warmer, drier summers, on average, for the Pacific Northwest.³ This is very similar to the weather pattern that we experience in El Nino years.

Two of the most noteworthy changes the Northwest can expect are decreased snowpack and shifts in rainfall patterns. High rainfall and substantial snowpack are essential to both inexpensive hydroelectric power production and the long-term viability of our salmonid populations. Salmonid populations already suffer from low, warm summer flows due to existing impoundments, irrigation withdrawals, and hydropower operations. Snowpack serves as the major storage medium for the Columbia River system (unlike rivers such as the Colorado, which has substantial multi-year storage capacity.) Consequently, lighter snowpack means both shifts in the timing of hydroelectric generation and less hydropower overall. Likely replacements for the hydroelectricity would be less climate friendly fossil fuel generation. Additionally, both salmon and hydroelectricity are already competing for available water with irrigation, navigation, recreation, and industrial uses. Perhaps in no other region are economic and ecological systems so critically dependent on existing hydrologic patterns.

Changes in state and regional hydrologic regimes are probably the most dramatic, but by no means the only likely consequences of global climate change. Nonetheless, those changes by themselves should be sufficiently disruptive to raise concerns about the consequences of continued, unchecked emissions. Lighter snowpack induced by global climate change would exacerbate the tensions that are already at the center of the highest profile Northwest policy debates: salmon recovery, water use, and growth management. It is the adverse impact of climate change on these signature Northwest issues that may ultimately generate sufficient will among policy makers to develop a Washington State response.

³ Based on results of climate change scenarios from "a transient coupled ocean-atmosphere general circulation model simulation of future climate change (Max Planck Institute für Meteorologie, Hamburg)." (Snover, Miles, Henry 1997, p.3)

Greenhouse Gas Mitigation Options for Washington State

Technical Potential

If Washington were to meet its proportionate share of the US's 7% reduction target agreed to in Kyoto, we would have to reduce carbon-equivalent emissions by 8.6 million metric tons by 2008-2012 based on currently project growth rates.⁴ In order to reach the 60% or greater reductions that the IPCC believes are necessary to stabilize the climate the State will have to undertake much more ambitious, long-term actions.

In 1996 the State of Washington completed a study of some possible options for greenhouse gas reduction (Garcia, 1996). Table 1 presents a summary of some of the major findings. As expected, the largest technical potential area of reduction is in transportation.

Estimated costs for implementation of these greenhouse gas reduction measures vary widely. For example, many retrofits in existing residential buildings are likely to more than repay the installation costs in energy savings. On the other hand, large-scale implementation of agricultural waste combustion projects that involve time consuming and costly collection of agricultural wastes may be nearly \$100 per ton of carbon emission reduction.

Table 1. Greenhouse Gas Mitigation Strategies for Washington State

Selected Strategy	Potential Annual Emission Reduction Thousands Metric Tons Carbon (2010)
Residential Retrofits	350
New Residential Construction	42
Commercial Sector	1,742
Industrial Sector	646
Transportation	6,500
Low Carbon Generation	1,365
Carbon Sequestration	1,500
Total	12,145

Table 1 presents one estimate of the **technical** potential for greenhouse gas reductions. The table shows clearly that substantial carbon emissions reductions will ultimately have to come from the transportation sector. In the short-term, emissions of transportation carbon are likely the most difficult to reduce, and transportation is arguably the source over which state government has the least control. However, the success of state initiatives should not be measured by their impacts on that state's emissions alone. Greenhouse gases emitted in any spot on the globe are just as much a threat to Washington's economic and environmental health as greenhouse gas emissions from Seattle. Indeed, some of Washington solutions may help reduce greenhouse gas emissions anywhere on the planet.

⁴ Unpublished estimates from Dr Jim Kerstetter, Washington State University Cooperative Extension Energy Program.

Linking carbon reduction strategies with state policy priorities

Responding to climate change per se has not emerged as a state policy priority. An attempt in the 1998 legislative session to create a joint select committee on climate change simply charged with the responsibility of investigating the potential impacts of climate change as well the economic opportunities for renewable energy and efficiency, did not even receive a hearing. Governor Locke's administration is focused on a short list of high-profile policy themes, and is actively urging agencies to concentrate on achieving more significant results in a smaller number of undertakings. Climate change is very unlikely to make this short list for this or any Governor in the near future. However, the consequences of climate change are so ubiquitous that they bear, more or less directly, on most other policy issues. Therefore, CTED's approach to this issue relies very heavily on the positive interactions between climate stabilization initiatives and these higher priority policy themes.

Three general areas of linkage between climate stabilization efforts and priority policy initiatives are particularly promising. First, we are linking energy efficiency and renewable energy initiatives to the state's high profile economic development and trade programs. Second, we are aligning emission reduction goals with the Governor's quality initiative -- a systematic effort to promote efficiency in government operations -- by stepping up our work in making public facilities more energy efficient. Third, we are developing climate stabilization adjuncts to a variety of issues that are likely to occupy the Legislature next year, including electric power industry restructuring, salmon restoration, growth management, and transportation. We are also developing or assisting in the development of incremental policy initiatives such as net metering and tax incentives for small solar systems.

Opportunities in State Economic Development and Trade

CTED administers many economic development programs, loan funds, and assistance services for both businesses and local governments. When the Washington State Energy Office existed there was much discussion about the obvious links between efficiency and renewable energy and the state's economic development agenda. While there were some notable successes in making the link, such as marketing of energy-efficient manufactured housing, they were the exception rather than the rule. With the relocation of the Energy Policy Group to CTED in July of 1996, we are now making a more concerted effort to forge those links. Here are two of examples of our efforts.

CTED, in cooperation with other organizations ranging from the Washington Council on International Trade to the Sustainable Business Institute at Washington State University, publishes an annual profile of economically successful and environmentally progressive Washington State businesses. The 1998 publication, *Finding the Balance: Economic Prosperity and Environmental Progress Leaders, Innovators and Success Stories in Washington State*, Volume II, included a discussion of greenhouse gases, global climate change, and leading climate friendly industries. (CTED, 1998). The section focused on four businesses that derive all or a large portion of their revenue from solar photovoltaic systems. Increasing these companies' exposure helps places them into the business mainstream with other highlighted companies including Boeing, Intel, and Starbucks. It also indicates that despite popular perception of Washington State as a sun-deficient state, we can and do support a thriving solar energy industry. The publication also provides a very high quality, high visibility marketing tool for the companies.

A second nascent effort is to promote and encourage energy-related sustainability principles within other CTED programs. The U.S. Department of Energy (USDOE) has an active program for promoting sustainable development and a steady stream of conferences, publications, and reports on sustainability. Sustainability efforts generally focus on long-term impacts and results; integration of economic, environmental, and social factors; and local “ownership” and accountability. All of these tie closely with global climate mitigation efforts. CTED is an agency that provides services and programs in more than 200 areas including housing assistance, growth management, business retention and recruitment, and assistance to economically distressed areas. Many of these programs are starting to incorporate sustainability principles into their activities. The energy division has been working to inform other parts of the agency about USDOE’s sustainability efforts and resources and the role of energy and efficiency in the long-term viability of businesses and communities. Overall, we have been well received. Now we are focusing on ways to turn this awareness and interest into concrete program directions and actions.

As an initial step, we hope to incorporate energy consumption and carbon emissions into one or more agency-wide performance measures. We are developing a measure based on a ratio of economic performance to resource consumption. The numerator would include some aggregate measure of economic performance, while the denominator would include energy consumption or carbon emissions. This would focus the state’s economic development activities on those that enhance the performance measure both by improving conventional economic performance (increasing jobs and income) and by decreasing energy consumption or carbon emissions. Initiatives that achieved economic growth at the expense of dramatic increases in carbon emissions would have a negative effect on the performance measure. Initiatives that both generate economic activity and minimize or reduce resource consumption would make the performance measure soar.

Three additional areas hold promise for tying together global climate goals and economic development. These include: 1) Integrating sustainability, energy efficiency, and renewable energy opportunities more directly in CTED’s business development and retention and infrastructure assistance programs. 2) Working cooperatively with growth management assistance programs, which have perhaps the greatest potential for stemming the alarming growth in carbon emissions from transportation. 3) Integrating our activities with the state’s high priority rural economic development objectives, particularly by demonstrating how energy efficiency can enhance rural economies by keeping local resources recirculating in local economies instead of being exported for energy. (This is one of the key insights of the Rocky Mountain Institute’s Economic Renewal program.)

International Trade

International trade is a mainstay of Washington’s economy, generating a greater share of our economic activity than in any other state. Boeing aircraft, Microsoft software, agricultural and forest products and numerous other items make up the export base for Washington state. One of every four jobs in the state is dependent on trade and this figure is expected to grow to one in three by 2005.⁵ CTED maintains an active trade division and trade offices in a half-dozen nations. The trade section also has a history of working with environmental businesses. It helped establish the Northwest Environmental Business Council (NEBC), an organization that focuses on promoting export opportunities for its environmental company members.

International interest in both renewable energy and energy efficiency is increasing rapidly as nations gear up to implement the Kyoto agreements. As developing, non-Annex I countries try to

⁵ Estimates provided by the Washington Council on International Trade, 1998.

balance economic growth with environmental concerns the demand for new, distributed and renewable energy sources and more efficient use of existing resources is also increasing. Washington State is particularly well situated to take advantage of these opportunities, by using our already robust trade infrastructure to improve the prospects of our growing renewable and energy efficiency industries. Washington is also well positioned to capitalize on diplomatic initiatives designed to hasten the move to low-carbon and carbon-free energy sources through transfers of knowledge and technology from Washington-based industries.

Washington's renewable energy industry is relatively large and robust (CTED, 1998). For example, Washington State has the single largest photovoltaic crystal growing plant in the world that produces more than 20 percent of the world's supply of photovoltaic crystal. We are also home to the largest inverter manufacturer in the world. These industries are experiencing 20 to 30% annual growth rates and the vast majority of their markets are overseas.

The state's energy efficiency industry is substantially larger than the renewable energy industry. Traditionally, these companies, except for some of the large multi-nationals, such as Honeywell and Johnson Control, have depended mostly on domestic markets for their business. While it is unlikely that these firms will become as dependent on export sales as the renewable energy industry, export may offer the opportunity to maintain or enhance their sales.

We are currently completing a study more specifically characterizing the renewable and energy efficiency industries. The study will provide baseline data on the number, size, and economic viability of this industrial sector. Preliminary work has already identified more than 300 companies who derive all or a large portion of their revenue from energy efficiency and renewable products and services. In addition, the study will provide information on the current role of exports along with an indication of interests in overseas market expansion. We will also use the results as a trade promotion and marketing document, much like similar documents produced by the states of New York and California.

In other energy and trade related activities we are: 1) Identifying key export market opportunities especially in Asia and the Russian Far East where our state's existing trade relationships are already strong. 2) Making the energy industries, especially the energy efficiency industry, aware of any such opportunities. Specifically, we are working closely with the Northwest Energy Efficiency Council (NEEC), a trade association of the energy efficiency industry. 3) Including energy efficiency as part of the state's standard trade promotion package. For example, the CTED energy group participated in the Globe '98 international environmental trade show in Vancouver B.C. At that show, we shared a booth with the CTED Trade unit, the Region X EPA, and the Northwest Environmental Business Council. Ultimately, we hope to generate sufficient interest and enough real export opportunities that these industries and their associations will begin to undertake some of these initiatives on their own.

Promoting Efficiency in Public Facilities

As in most states, public facilities consume significant quantities of energy statewide. And enhancing efficiency in government is a consuming passion of the Governor. The most recent comprehensive analysis of public facility energy use estimates that the public sector consumes more than 21 trillion BTU annually at a cost of \$165 million (Baylon et al 1991). While the overall carbon reductions from energy efficiency in buildings are relatively small compared to other sectors, they are not insignificant. In addition, they are very often highly cost effective and can generate substantial reductions in the cost of government operations.

We are concentrating on three major approaches to public facility energy efficiency. One, energy performance contracting, is a relatively traditional approach. The other two, the state quality improvement initiative and electricity restructuring, are slightly less so.

Washington State has successfully used energy service performance contracting (ESPC) in state-owned facilities for more than ten years. The Department of General Administration, with support from the USDOE is now expanding the ESPC approach to include other public entities, notably school districts and local governments. The program expansion is based on the model developed by USDOE - the Super ESPC. Washington is the first state to adopt this model of pre-qualification of performance contractors and simplified contracting procedures. This program will allow all public facilities to use private sector capital as at least a partial replacement for disappearing utility incentives.

We are also using the possibility of electric industry restructuring as a means to increase awareness and implementation of energy efficiency in public facilities. Many public entities view restructuring as a future uncertainty. School districts are particularly concerned that their predominately daytime and seasonal usage patterns will not make them attractive targets in a restructured market and that their energy bills may increase. Our basic premise is that electricity restructuring is likely to occur at some future date, the price impacts are uncertain, and prudent public sector facilities managers should try to minimize their potential risks via investments in cost effective efficiency measures.

In 1997, Governor Locke issued an executive order directing state agencies to focus on quality improvement as part of their regular way of doing business (State of Washington, 1997). Among other provisions, this executive order holds individual agencies accountable for quality improvement. Energy efficiency is a very attractive method to demonstrate tangible improvements in the financial and environmental performance of public institutions. Improved efficiency means less expenditure on facilities, freeing up funds for other critical areas such as facility maintenance or expanded program offerings. For the last several months, the Energy Policy Group has been working with state agency representatives to develop ways to implement this quality/energy opportunity. Currently we are working on a draft executive order or addendum to the quality improvement executive order that would set forth some specific energy objectives.

Linkages with Legislative Priorities

The foregoing has focused on some of the global climate opportunities available to state government agencies. Most of these opportunities do not require substantial legislative action in order to succeed. However, some major opportunities will not materialize without legislative action. And, unless and until climate change emerges as a “burning” state issue in its own right, legislative action to help stabilize the climate will require linkages with higher priority legislative issues. Some of the likely candidates for such linkages are discussed below. To date, none of these legislative debates has been substantially influenced by climate considerations. On the ground, however, the issues they address will be shaped profoundly by climate. It is these connections to signature state and local issues that hold the promise for future productive state legislative responses to climate change.

Electric System Restructuring

The prospect of electricity restructuring and competition among electric power providers has resulted in a dramatic decline in utility investments in energy efficiency. The reasons for the decline

are well known and similar throughout the U.S. However, the decline has been particularly dramatic in Washington because much of our efficiency investment came from the Bonneville Power Administration, a wholesale provider that became subject to competition under EPAct in 1992. Our estimates indicate Washington State electric utility investments in energy efficiency have declined from more than \$200 million in 1996 to less than \$80 million in 1996.⁶ The later figure actually masks an even more rapid downturn. It includes so-called legacy contracts: existing contractual commitments by utilities that will tail off in a few years.

Much of the future of energy efficiency and renewable energy production in Washington State is tied to outcomes of electricity restructuring. Currently the state has not restructured its utility industry -- only a limited series of utility pilot access programs are in place. The most widely supported approach for funding public purposes -- energy efficiency, renewable energy development, and low-income weatherization -- is a minimum investment standard of 3% of total revenues. The standard would be administered in large measure by distribution utilities on a non-bypassable basis. However, prospects for a comprehensive restructuring package in Washington are highly uncertain.

A non-bypassable system benefits charge with a rational structure to ensure that it is directed toward cost-effective investments continues to be a very high priority for the CTED Energy Policy Group. Its development and adoption will go far toward shoring up the rapidly eroding energy efficiency industrial base, restoring the region's status as an electric energy efficiency leader, and accelerating the transition to non-hydroelectric renewable resources.

While energy efficiency and renewables are a standard part of the package for most electric restructuring initiatives, they have not featured very prominently in the policy initiatives listed below. However, the linkages are natural, and climate change may help to forge them.

Salmon Restoration

Natural resource policy in Washington is very heavily dominated by salmon recovery efforts. With Endangered Species Act listings for salmon and steelhead pending for every county in Washington save one, the issue has assumed major proportions throughout the state. Salmon are not snail darters; they are an icon for the Northwest way of life for both native and transplanted cultures, so their recovery is far more than an exercise in preserving biological diversity. Because their habitat stretches from the ocean far into the watersheds of the state, their recovery demands substantial changes in land use, water use, forestry, agriculture, and urban development.

It also demands a stable climate. Likely changes to Northwest ecosystems from global warming include reduced snowpack, increased flooding in winter and spring and lower flows in summer and fall, higher river and ocean water temperatures, and forest degradation. Any one of these can be lethal to salmon. While the preliminary focus of salmon restoration is on the legal requirements of the Endangered Species Act, sincere salmon recovery efforts will ultimately have to address climate issues. The relationship is complicated by the fact that our existing hydropower base is heavily implicated in the decline of salmon runs, especially in the Columbia River basin. Replacing hydropower to protect salmon will probably increase carbon emissions in the short-run.

This linkage between salmon recovery and climate stabilization is compelling scientifically, but almost invisible politically. Ultimately, however, state and local responses to climate change will gain momentum because of these types of linkages between climate change and issues of pre-eminent state and local significance. For Washington, that means salmon.

⁶ Energy Policy Group, unpublished estimate, 1998.

Growth Management

A perennial hot-button issue in Washington, growth management will be a focus of legislative activity for the foreseeable future. Our existing statewide growth management law is exceedingly controversial and its implementation animates county politics in much of the state. Hotly contested as it is, however, the growth management law is probably not up to the task of achieving significant reductions in carbon emissions from transportation. However, the state's influence on planning and development patterns may be one of its most direct connections to the transportation needs of the future. To the extent that the state can affect the demand for transportation, growth management is probably the logical place to do it. Here again, climate change per se has not crystallized as an issue in the context of state and local politics, but for much of western Washington, growth and its effects on quality of life is a daily front-page topic.

Transportation

If public investment is an indication of public priorities, then transportation is our overwhelming preoccupation. Yet, much of the public investment in transportation is both economically inefficient and counterproductive to climate stabilization. This fall, ballot initiatives to reduce or eliminate most of our motor vehicle excise tax while raising public investment in roads would transfer a substantial part of the cost of transportation infrastructure from users to taxpayers. The variable cost of driving is already driven artificially low by the structure of public investment. State transportation demand reduction initiatives have achieved some successes, but they have been swamped by population growth and suburbanization of much of western Washington.

Energy use and climate stabilization are conspicuously absent from the transportation debate in the state. Though not historically a focus for the Energy Policy Group, introducing energy and climate issues to the transportation dialogue is a priority for us in the future. We are just beginning to learn where the opportunities are and the initial prospects look somewhat daunting. However, as Figure 1 shows, we cannot get very far in reducing in-state carbon emissions without hitting the roads.

Energy Policy Initiatives

In addition to two electricity restructuring-related bills, the 1998 legislative session also saw the introduction of several other positive energy bills that help pave the way for reductions in carbon emissions. One provided sales tax exemptions for small wind, solar, and hydro systems; another established net metering for small, grid-connected renewable energy systems; a third exempted landfill gas electricity generation equipment from sales tax; the fourth created a joint select committee on climate change. Of these, the net metering bill and the landfill gas bill were passed into law.

The net metering legislation (HB 2773) allows customers with less than 25 kW load to credit any temporary excess of production from small renewable energy systems against future consumption (WA State Legislature, 1998). Although the overall impact of the bill is likely to be small, it is an important step forward in improving the economic attractiveness of individual solar and wind systems. This is particularly true for solar in northern latitudes, where the solar resource is very especially subject to seasonal and diurnal fluctuation. Perhaps, even more importantly it alerted Washington legislators to the existence of a state renewables industry and the viability of solar systems in many specialized applications.

We expect that the 1999 legislative session will see the reintroduction of the unsuccessful bills from 1998 as well as other climate-related legislation.

Conclusion

Climate change may be the ultimate global *problem*, but it is clearly susceptible to state and local *solutions*. However, states may be slow to embrace solutions because of:

- The continuing perception of uncertainty about the science, notwithstanding the overwhelming evidence suggesting discernible human influence on climate patterns.
- The perception that mitigating climate change is costly and potentially economically disruptive.
- The perception that unilateral action (particularly if its costly) is futile, since any entity that reduces greenhouse gas emissions would bear all of the costs and receive only a tiny fraction of the benefit, (or no benefit at all if others do not act and climate change continues unabated.)

State action that simultaneously yields economic benefits and greenhouse gas reductions can overcome these barriers. If we prosper through climate change initiatives, then it does not much matter if the science is wrong or if our contributions are not reciprocated. This is the underpinning of the so-called “no regrets” strategy. Such a strategy may not ultimately yield greenhouse gas reductions sufficient to avert catastrophic climate changes. But it probably is sufficient to get the ball rolling, to demonstrate the some climate stabilization strategies are economically attractive, and to generate the investment and innovation that will ultimately make carbon-free energy technologies competitive.

Washington is well positioned to pioneer some of the most economically attractive greenhouse gas reduction strategies. But it seems likely that virtually every state has high-priority policy objectives with strong links to climate change issues. In Washington, we care about salmon and forests; water and sea levels; economic development and trade; growth and transportation; and efficient government operations. All of these will affect or be affected by climate change. And it is ultimately these effects on Washington’s natural and human resources we care about as a state that will drive more concerted state action. We suspect that the same holds true in other states.

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